

T H E S I S

FOR THE DEGREE OF M.D.

B Y

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An enquiry into the relative value of Symphysiotomy, Induction of premature labour, Embryotomy and Caesarean Section, in certain abnormalities of the Female Pelvis.



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In the year 1881 Professor Ottavio Morisani of Naples published the results of an obstetric operation which he had been performing as occasion offered since the year 1866. This was the operation of Symphysiotomy. These results he embodied in a paper which was presented to the International Congress at London of that year, and published elsewhere and in the Annales de Gynécologie Paris 1881 p440. At that time Symphysiotomy lay under the bann of an unfortunate past history. Many years before it had been weighed in the balances and found wanting. Professor Morisani must therefore have had considerable courage to appear before such a tribunal of his professional brethren, and announce to them that for fifteen years he had been performing an operation which had been at an earlier period universally condemned and as it was thought, once and for all, consigned to oblivion.

But while there was such a consensus of opinion among eminent obstetricians there remained at least one of them, who had failed to satisfy himself like Baudelocque, that it was essentially wrong, but who, on the contrary remained persuaded, that the operation was essentially a good one, and might in the future prove of much service in the Art of Obstetrics.

Notwithstanding the able pleading of Professor Morisani on that occasion and his fifty cases, Symphysiotomy was not then destined to be rehabilitated, the day, however, was not finally avoided but only postponed. Five years later Professor Morisani presented additional statistics to the national congress of obstetrics and gynecology held at Rome in 1886 and five years more saw the dawn of a new day in the history of the operation.

In the year 1891 there is evidence that the operation was preparing to burst its Italian limits, and find a welcome in other lands, and it seemed a becoming thing that it should first be wel-

came back to the land of France where it had been originally conceived and carried out, and whence it had been exiled with maledictions on its head. In that year Professor Pinard of the Baudelocque Clinic of Paris, dissatisfied with the results of Embryotomy, could not but regard with envy the results of Symphysiotomy, obtained and published by the Neapolitan School. He seems to have received Professor Morisani's envoy Dr. Spinelli with cordiality, and heard with favour his advocacy of the operation.

In collaboration with Professor Farabeuf and his chef de clinique Dr. Varnier, he instituted experiments on the cadaver, which while they agreed in the main with these of Baudelocque convinced him that a notable and useful enlargement of the pelvis resulted from the division of the symphysis pubis, and he resolved that he would put the operation to a clinical test.

We propose in the subsequent pages to discuss what we have aimed to do, (vide heading of Thesis) in the following order. We shall give

- I. A brief account of the operations for which it is suggested Symphysiotomy may be substituted in the

treatment of certain abnormalities of the female pelvis, including, the induction of premature labour, Embryotomy and Caesarean Section.

II. We shall discuss Symphysiotomy itself and its results. and

III. Finally, briefly draw our conclusions.

The Student Sigault originally suggested his operation as a substitute for Caesarean Section the maternal mortality of which in his day was enormously high. Professor Morisani revived the operation as a substitute for Embryotomy. Professor Pinard and others have in addition to Embryotomy recently advocated its adoption as a substitute for the induction of premature labour and of the use of the forceps in cases of contracted pelves.

The induction of premature labour seems to have been first adopted in this country as an obstetrical operation, about the beginning of the second half of the last century. We are told by ^IDerham that in 1756 a consultation of the most eminent medical gentlemen of that day met in London to
(see foot of next page for reference).

consider the advantages which might accrue from the operation, they gave their opinion in its favour, and it accordingly received a place in British Obstetrical Art. It was not, however, immediately received by Continental accoucheurs². Germany took fifty years to make up its mind, doing so in 1804. While France continued to denounce it, as late as 1827.

The induction of premature labour, which means the artificial interruption of gestation, at a time when the foetus is able to live outside the uterus, has hitherto been adopted in cases where to speak in general terms there exists, or where it is believed there would exist if the pregnancy were allowed to go on to full term, a disproportion between the head of the child and the maternal passages. Further in cases where the mother's health may demand it or where the former children have died in utero just before term, and so on, We are concerned in the present only with the first group.

The large proportion in which difficulty occurs is due to simple flattening of the pelvis in

1. Playfair's Science and art of Midwifery 1893
Induction of premature labour.

2. *ibid.*

the antero-posterior diameter, There are of course other varieties of deformity including the flat pelvis due to Rickets, the malacosteon the justo minor, and so on.

English Authors have generally fixed on 2.5 inches as the lowest c.v. measurement admitting of this operation, and we shall find later that this is the lowest limit of Symphysiotomy. German Authors place it somewhat higher viz. $(6\frac{3}{4}-7\text{cm}) = 2.64 - 2.75$ inch. and Professor Leopold of Dresden who still advocates this operation in preference to Symphysiotomy, when it is still in the power of the physician to perform it, fixes the lowest limit of contraction at 7 cm, for the conjugata vera.^I If the dispute between the induction of premature labour and Symphysiotomy could be settled by an appeal to the comparative simplicity of the two operations, it would I suppose be an easy matter to decide in favour of the former, but the question cannot be put in that form. While the mother runs comparatively little risk from this operation, it is well known that a

large number of the infants succumb shortly after birth and a large number more cannot be reared.

And moreover if we are very anxious to save the child, the solution of certain difficulties may be very embarrassing. We must make first of all a fairly accurate measurement of the antero-posterior diameter of the pelvis. And even in skilful observers, according to Galabin^I there is a possible error of $\frac{1}{4}$ inch. When we are dealing with a pelvis coming near the lowest limit of contraction, in which this operation is permissible say 2.5 inch, and we are $\frac{1}{4}$ of an inch or more out, to the bad, the child will stand a poor chance of being born alive. And if the pelvis be a malacosteon or an irregularly contracted one, and we are reduced to the introduction of a fist for the purpose of giving us an idea of how matters stand; this idea must necessarily be of the roughest description, and what we have just said applies with greater force in this case.

The size of the foetal head is another constituent of the problem, which must be estimated

1. Galabin Man. of Midwif. 1891, p522.

before we can decide to adopt this measure. We may endeavour by palpation to get an idea of the size of the head or we may trust in part to history of previous labour. Dr. Alfred Goenner^I of the Basle Gynaecological Clinic has been working at the relation of the foetal head to that of the father and mother, and the elucidation of this may affect this matter in the future. In his paper "Über Vererbung der Form und Grösse des Schädels, he concludes that in many cases even if not in the majority, there exists a resemblance between the skull form of the parents and those of their children. This resemblance may be slightly and temporarily effaced by the effects of labour, and adds, that the subject of his investigation is of great importance "bie engen Becken. These matters satisfactorily settled, it remains to determine at what time we shall interrupt gestation, and induce labour for this purpose we require additional data, respecting the stage of gestation. Where pregnancy exists in a normal condition of things, it is comparatively easy to determine within the limit of a day

I. "Über Vererbung der Form ü Grösse des Schädels in Zeitschrift f Geburtshülfe ü Gynäk: 33 vol. pt.1

or two its stage, and we are in that case not entirely dependent on the woman's story, but in the case of a woman with a flat pelvis it is otherwise, we cannot then be so sure of the stage of pregnancy, for the fundus of the uterus is pushed up to an unknown extent by the flattening of the pelvis. We are therefore more dependent on the history provided by the patient. Now if the contraction of the pelvis gives us a c.v. of 2.5 in. it will be prudent according to Barnes, not to wait beyond the 240 days, in the lesser degrees of contraction, one may wait 250 days, but there is a probable error in calculating the commencement of pregnancy of at least 15 days, for one must admit that impregnation may have occurred late or early after a menstrual period, or even have occurred before the last menstrual period, and accordingly these facts will have their influence on the development of the child and on our calculations. In the event of the first happening we shall in all probability have a non viable child, and in the event of the second the child will run considerable risk of fatal injury during delivery.

It seems therefore to be clear that the chief indictment which can be brought against this operation is the danger which threatens the infant's life. The risks to the mother from this operation are inconsiderable, but depend to a large extent upon the choice of means in its performance, and upon the skill or want of it of the operator.

What has been just said regarding the induction of premature labour, is necessarily only true concerning the woman who consults the physician sufficiently early in her pregnancy. In many cases especially of primiparae, the condition of the pelvis is only recognised, for the first time, after labour has actually set in. When, failing forceps and turning, embryotomy was formerly the "dernier ressort" of the accoucheur, provided the pelvis was not one of that extreme degree of contraction, which necessitates Caesarean Section.

The record of embryotomy, so far as the mother is concerned is a fair one, when it has been adopted as an elective measure, the record is decidedly good. All the infants of course are sacrificed.

It is an operation on the foetus in utero, directed to reduce its bulk, so that it may be delivered without injury to the mother. Parvin^I informs us that it is a very old operation and that Hippocrates gives directions for its performance. It has been resorted to for the purpose of effecting delivery in a variety of abnormal conditions. It has been used in those cases where there exists a disproportion between the head of the child and the maternal passages which might have been treated by the induction of premature labour, in hydrocephalus, locked twins etc.. When the foetus is dead in utero and can only be delivered by embryotomy, this operation is of course indicated and no other. Formerly British obstetricians always performed embryotomy even in living children down to that degree of contraction where it ceased to be possible. The older German and French Authorities did not resort to it so frequently. Sir Jas. Y. Simpson² quoting from Busch and Moser's Handbuch der Geburtshilfe says that "when the smallest diameter amounts to $2\frac{3}{4}$ inches the termination of labour is possible

1. Sc. and Art, of obst., 1891 2 Ed., p671.
2. Obstetric Works, vol 1. p660.

"only by making an artificial passage or by breaking
 "up the child. The possibility of the latter matter
 "ceases whenever the smallest diameter amounts only
 to $2\frac{1}{4}$ inch or less and the Caesarean Section becomes
 "then the only possible mode of delivery, and that to
 "which we must have recourse whether the child is
 "dead or not. If the contracted pelvis measures
 "from $2\frac{1}{4}$ to under 3 inches then the Caesarean Section
 "is indicated if the child is alive, while if it is
 "dead perforation is to be had recourse to".

The French opinion quoted by Sir James^I
 is very similar "according to Jacquemier" he says
 "when the pelvis is below 2 inches in its narrowest
 "diameter, the Caesarean Section is the only justifi-
 "able mode of delivery even if the child is dead, and
 "when it varies from 2 to $2\frac{1}{2}$ in and the child is alive,
 "the Caesarean Section should be prepared to Embryot-
 "omy not only for the sake of the life of the child but
 "as perhaps not more dangerous to the mother than a
 "protracted and difficult labour by Embryulcio gener-
 "ally proves to be." In Sir James' time Embryotomy

was resorted to in those cases where the pelvis measured $2\frac{3}{4}$ in at the smallest diameter down to $1\frac{1}{2}$ in and sometimes even when the c.v. was as high as $3\frac{1}{4}$ in. The difference therefore between British and continental practice of those days will be apparent, and the reason is, that the British always sacrificed the life of the child rather than allow the mother to incur a greater risk than Embryotomy entails, while on the continent, on the other hand, the mother was allowed to run additional risk for the sake of her child. This difference of practice may probably be explained by the influence of the Roman Catholic Church on the continent, which set its face against the sacrifice of children entailed in Embryotomy. It may be noted at this point that before the midwifery forceps were brought to perfection there were many more craniotomies than afterwards and the statistics quoted by Galabin^{II} will be instructive and have a bearing on what follows. According to this Author, there were, in Guy's Charity Hospital London from 1833 to 1854 3.6 per 1000 craniotomies from 1854 to 1863, there

1. Die Symphyseotomie v. R. Müllerheim. 91. p.1.
2. Galabin's Manual. p. 530.

were 1.2 per 1000. from 1863 to 1875 there were .7 per 1000, and from 1875 to 1885 there were .9 per 1000. This reduction was he says due to the introduction of improved forceps, with longer handles, and less yielding in the blades. And in the Rotunda at Dublin, from 1847-1854 while the straight forceps were in use the craniotomies amounted to 7.9 per 1000, and from 1868 to 1875 when the long forceps had been adopted craniotomies were reduced to 3.5 per 1000. In addition to this reduction in the number of craniotomies performed by British obstetricians due to the improvements of the midwifery forceps; they have in recent times been still further reduced by the adoption in this country more or less of the continental principles in the choice of operations. This change in front, is due to the improved statistics of the Caesarean Section, which, thanks to an improved technique, but more to Listerian methods has had a greatly reduced maternal mortality.

CAESAREAN SECTION; - the opening of the abdomen and the extraction of the child through the incised uterus, is like Embryotomy an ancient operation. Julius Caesar was supposed to have entered

the world in this fashion, like Macbeth "untimely ripped from his mother's womb". The ancients, however, only performed the operation on the dead woman in order to save the life of her child, and it is not until we reach the 14th. or 15th. century^I that there is any intimation of the operation having been performed on a living woman. Its early history was a record of maternal deaths, and this led for a time to its abandonment, and although revived in Roman Catholic countries, it was not until Porro, a year before Sigault performed his first Symphysiotomy, devised and recommended the operation that is called by his name, that the maternal death rate began to subside, and this was still further reduced by the introduction of Sangers operation, which consists of the multiple suture for the uterine wound and Lambert's suture for the uterine peritoneum, instead of the removal of the uterus and its appendages as in Porro's Operation. It must not be forgotten, however, that antisepsis and the rigorous cleanliness with which these operations are now conducted, together with the

use of Chloroform, to prevent shock, play a most important part in the production of the present low maternal mortality. On the other hand it must be noted that there are potential dangers inherent in the operation, which can never be removed, and prevents its ever being regarded as other than a formidable one. The best results (German) give a maternal mortality of nearly 12% which is incomparably better than the 84% the result of early British operations. The indications of this operation have been classified as absolute and relative. There can be no difference of opinion regarding the first class, it includes all these cases in which a child cannot pass through the maternal passages however mangled and mutilated it may first be, by any of the instruments used for that purpose. There remains then Caesarean Section as a last resort. There is a controversy, however, regarding those cases which are included under the second class. In earlier days the dispute lay between Embryotomy and Caesarean Section. At the present day Symphysiotomy has entered the lists against both, and we shall now consider this operation in detail.

We are indebted to Desforbes' "Recherches Historiques et Critiques sur la Symphysiotomie" and Neugebauers' "Über die Rehabilitation der Schamfugentrennung etc" for a complete history of the operation of Symphysiotomy. They trace the idea from Hippocrates, who noted the separation that sometimes takes place at the Symphysis pubis during labour, and the effect it had of rendering labour easier, down through Avicenna of the Arabian School, Vesale, Ambroise Paré, Severin Pineau, Delacourvée and Plenck to the student Sigault. Jean Claude de la Courvée was a French Doctor practising in Warsaw Poland where in 1644 he performed this operation, on a dead woman for the purpose of saving her child. Joseph Plenck of Hungary in 1766 performed the same operation in similar circumstances. It seems, however, that the honour of first suggesting the use of this operation on living women, as a remedy for certain abnormalities of the female pelvis belongs to Severin Pineau 1597. Professor Pinard denies him this honour, but Neugebauer, reasserts Pineau's claim. "Pineau's sagt", says Neugebauer, "man könne nicht nur auf obigem wege die Erweiterung der schamfuge hervor-rufen, sondern man könne sogar die Schamfuge durchschneiden".

Be that as it may, and whether or not as has been asserted the Student Sigault was familiar with the work of Severin Pineau, he nevertheless studied the subject closely and performed the operation several times on the cadaver, in 1768 according to Pinard he communicated his results to the academy of Surgeons Paris, who received his paper with extreme disfavour; but not disconcerted by this unfavourable verdict he continued his investigations and in colloberation with Professor Leroy performed his first operation in 1777 on the woman Souchet the wife of a French soldier. The lives of both the mother and the infant were in this case saved, although the woman was crippled for life, this success brought a great reaction in favour of the operation; it was now hailed as a gift of Heaven, a medal was struck in Sigault's honour by the Academy of Medicine, and a pension was voted to the woman Souchet. But the day of its triumph was brief, for the hopes thus raised by the operation were speedily doomed to disappointment, nor can we imagine how it could be otherwise; veiled as it was in obscurity as to its

indications; its dangers undefined; and its technique imfortified by the sompulous antiseptic precautions which obtain at the present day. Further operations were attended with a terrible mortality.

Baudelocque and Madame la Chapelle raised their voices against it and in a short time the operation was only mentioned to be execrated.

From the date of Sigault's operation to 1858, has been called "the first historical period of the operation" and according to Dr. Harris of Philadelphia,¹ there were 150 Symphysiotomies performed in the 82 years. Of this number the results of 114 are unknown; 74 women and 41 children were saved that is a mortality of $34\frac{3}{4}\%$ for the women and $63\frac{5}{8}\%$ for the children, or neary two out of every three. These results were so bad that from the year 1858 until Professor Morisani began to operate in 1866, the operation had been entirely abandoned. In the latter year Professor Morisani of Naples who had already been convinced by his experiments on the cadaver, an account of which he had published as early as 1863 in a memoir on contractions of the pelvis, of

1. Transactions of the obst. Socy. of London. vol 36 1894 p.117.

the utility of the operation; resolved to try once more whether clinical experience could not be induced to say something also, in its favour but with regard to its immediate and remote effects. He accordingly set himself the task of eliminating those cases of more extreme contracted pelvis, which were unsuitable for the operation, and of operating only on those cases where the degree of contraction clearly indicated the operation in accordance with his previous experiments. He likewise set himself to improve the technique of the operation.

From 1866 therefore to 1880 inclusive, he had collected as many as fifty cases^I, on him he or his colleagues Drs. Novi and Martini had performed Symphysiotomy and his results shewed an immense improvement on those of the first historical period. He still felt however that the mortality was higher than it ought to be. His operations were performed upon 48 women and upon 2 of them for the second time. He saved 40 of these women and ten of them died (the 2 women who were twice operated on being reckoned as 4). Of the children 41 were saved and 9 perished.

1. Ann; de Gynecol; Paris 1881, p. 440.*

The degree of contraction of the c.v. diameter varied in these cases from 81 mm. to 61 mm. 36 of the cases being upon women the c.v. diameter of whose pelvis varied from 74-67 mm. At 81 mm. ample time was given to the natural powers to complete labour and even forceps ultimately failing Symphysiotomy was resorted to. It was twice done with a c.v. of 61 mm, but that was exceptional and was not recommended to be repeated. Professor Morisani then fixed the minimum contraction of the c.v. diameter at 67 mm. = $2\frac{5}{8}$ in., and this practically remains to-day the lowest limit of the operation. His view then was and I believe still is, that Symphysiotomy may as a rule be substituted only for Embryotomy and that the induction of premature labour, must always be resorted to while it is still in the power of obstetricians to do so, and denounces in somewhat strong terms those who substitute it entirely for the induction of premature labour. His words are, "I cannot make a comparison between "Symphysiotomy and the induction of premature labour, "according to my view, the accoucheur who has the "care of a woman during pregnancy the subject of con-

traction of the pelvis within the limits indicated, "ought to practice the induction of premature labour, "if he permits pregnancy to go to term in order to "perform Symphysiotomy he will in my opinion be "guilty of bad surgery, and of mal praxis". According to Professor Morisani there is no conflict between Symphysiotomy and Caesarean Section the one begins where the other ends.

Professor Morisani's results compare very favourably with those of Embryotomy, published at that time in Italy by Professor Tibone of Turin and Professor Chiara at Milan. Professor Tibone's statistics of Embryotomy shewed a mortality of 21% while Professor Chiara's shewed a still higher mortality of 24%. Notwithstanding these favourable results and Professor Morisani's powerful pleading Symphysiotomy continued still for a long time to be regarded with distrust and disfavour by the medical world at large, and Professor Morisani must retire baffled for the present to Italy to enjoy alone the benefits he claimed for Symphysiotomy. In Britain and on the Continent when it was mentioned, it was usually re-

viled, but it was generally passed over in silence by text books of Midwifery as if deemed unworthy of even a passing reference. M. Pinard^I tells us that in France M. P. Dubois and Desornoreaux almost condemned it. St. Velpeau, Jacquemier, Sazeaux did not absolutely deny its utility, but though they think it may have its indications, in some cases, they do not practise it. Stoltz still prefers the operation of Caesarean Section, and so with M. Tarnier, but in the text which he has written for the Atlas of Lenoir, he says "that it is not perhaps audacious, nor rash to think that Symphysiotomy some day will be the complement of premature labour". Other Frenchmen had expressed themselves as favourably impressed by the operation. M. Bouchacourt in his article on Symphysiotomy in the Encyclopedic Dictionary of the Medical Sciences, says that he made experiments with M. Polosson and thinks favourably of the operation.

In Germany E. G. J. Siebald has expressed himself strongly against it "For all those who are not blind" he says "the operation remains nothing

1. De la Symphyséotomie p. A. Pinard. 1891.

"more than a historical curiosity and one may apply to it this excellent adage "Felix quem faciunt aliena pericula cautum". Zweifel and Winckel condemn it as late as 1889 - Many of the above, however, will be found now among those who practise, and contribute cases in support of, the operation - And in the 11th Edition of Karl Schroeder's Lehrbuch der Geburtshilfe 1891 you will look for the word Symphysiotomy or any German substitute for it in vain. In Britain Barnes expresses himself thus "Symphysiotomy notwithstanding this favourable report (Morisani's of 1881) "will probably not make way in practice as an alternative for the Caesarean Section or for Embryotomy". Galabin does not mention the subject in his text book of Midwifery. Parvin in the United States, in his "Science and Art of Obstetrics" of 1891 says "the American Obstetrician will find no condition justifying its performance" Dr. Matthews Duncan, however, in his work "Researches in Obstetrics" p. 152 sounds a note in its favour. "British Obstetric Authors", he says "have loaded the operation itself with calumnies which are quite unfounded, and raised diffi-

"culties about it which are sufficient to deter a
"superficial enquirer from its consideration".

These excerpts give us a fair idea of the estimation in which the operation was generally held up till 1891. In that year Professor Pinard, like many enquirers before him began his study of Symphysiotomy by making in conjunction with Professor Fara-
beuf and his "Chef de Clinique" Dr Varnier some experiments on the Cadaver. He obtained from Dr. Labadil-Lagrange doctor at the Maternity and M. Gouget his house surgeon the pelvis of a woman who had died 9 days after an accouchement at term of nephritis. He made a section of the pelvis at the level of the superior straight, which measured in its antero poster; diameter 10.8 c.m. By means of a separation of the pubis of 6 c.m. the pelvis 10.8 c.m., became a pelvis of 12.4 c.m. The antero-posterior diameter thus gaining 14 mm. Reference to the illustration opposite ^I will show that the sacro-iliac articulation gapes in a wedge-shaped manner; that the posterior ligaments are intact, and that the smaller anterior ligaments, while they have been stretched and separ-

^I

Illustration at end of Thesis.

ated from the bone are not torn. When the pubic bones are again approximated the surfaces of the sacro-iliac articulation come so closely together that it is difficult to discover traces of the separation. He made another section from the pelvis of an old woman, who had died after the menopause which though not so successful nevertheless corroborated the above.

^I
M. Pinard concludes -

- I. That the enlargement of the pelvis is possible and noteworthy.
- II. That maintained within certain limits it is made without any other alteration of the pelvis than a detachment of some fibres of the anterior ligament of the sacro-iliac articulation.

From his experiments Professor Farabeuf has constructed tables showing what augmentation is obtained in the pelvis with a c.v. from 5-10 c.m. with an interpubic separation of 5-7 c.m. vide tables. These experiments so far as figures go, correspond with those of Baudelocque Morisani and others, Leaving M. Pinard for the present, ardently hoping that he is not deceived in his newly formed expectations.

1. De la Symphyséotomie par a Pinard 1891.

ations, that the adoption of this operation will result in the saving of the lives of many women and children, and that henceforth, accoucheurs will not be condemned to the painful necessity of crushing children full of vitality, children whom it is their duty to do their utmost to save .

We shall now consider briefly, any indications in nature, which may suggest the operation.

It is a well known fact commented upon by many writers on Obstetrics, that the ligaments of the pelvis joints, with the synovial membranes, share in the development of the uterus which takes place during pregnancy. Dr. Matthews Duncan in his researches in Obstetrics p. 144, says, that "in the latter half of pregnancy, the soft tissues contributing to form the pelvic joints, are invariably or almost invariably found softened, serous infiltration and the joints are consequently relaxed." This softening and stretching of the ligaments referred to is well seen in the guinea pig. During parturition the pubic bones of this small quadruped, may be separated to the extent of an inch or more, and after parturition they become again closely united.

This separation and general relaxation of the pelvic joints towards the end of pregnancy and after parturition is evidenced frequently by pain in standing or walking or the patient may be quite conscious of a feeling of looseness of these joints on first rising after a confinement.

Further an accident sometimes occurs during labour which is of great significance to us here. It seems to be nature's own remedy for the relief of contracted pelvis. I refer to the rupture of the symphysis pubis which is known to occur during labour in these conditions. Ahlfeld in his "Die Verletzungen Beckengelenke etc, Schmidts Jahrbuch Bd 169, 1876 tells us that the joint most frequently ruptured during labour is the symphysis pubis, and that with this rupture, there is commonly associated some injury to the sacro-iliac joints; the accident most frequently occurs in the justo-minor pelvis. Professor ^IPinard also relates a case in his own experience, on the 25th. of December 1883. On making an application of forceps during my service at Lariboisière on a woman having a contracted pelvis, I heard,

at the moment of attempting to execute with the instrument the rotation of the head, a sonorous cracking. After completing extraction, I recognised no injury to the head of the child, on examining the symphysis I discovered with alarm that it was ruptured, and that it was possible to introduce two fingers in the separation of the pubis. This matter of the mobility of the joints of the pelvis after labour, has been pretty thoroughly worked out by Robert Müllerheim of Strassburg.¹ He made his investigations on 200 lying-in woman. But he rejected the results obtained in the first 20 remarking that they were vitiated and unexact, "aus mangel an Übung". Briefly his results are, of the 180 women, 138 shewed more or less mobility of the sacro-iliac joints. The absence of mobility is most frequently observed in persons who are well past the age of 30. The younger the women, the greater the mobility of the joints as a rule. The constitution of the woman seemed to have no influence on this mobility. According to Aeby,² whom Müllerheim quotes, this mobility of the

1. Sammlung, Klin; Vortr; Nr 91 p 6.

2. *ibid*, p.8.

symphysis pubis depends upon the softening of the inter-articular cartilage and of the ligaments. The inter-articular cartilage is large in the young and diminishes with age, until it finally entirely disappears. It seems to follow from all this that the strictures, as to its irrationality, which have been passed on the operation are unjustified. On the contrary it may be fairly alleged that Symphysiotomy has a rational natural basis, and if the immediate and remote results for mother and infant can be shown to be favourable, there remains no reason why it should continue to be excluded from British Obstetrical practice. When we remember the early conditions under which Symphysiotomy was performed, the results of that first historical period, are not so discreditable as has been made to appear. There were successful operators, in that period, as well as at the present day. Antonie Dubois for example operated twice on the same woman De la place and with success. We know well enough now, that Symphysiotomy in extreme degrees of contraction of the pelvis is an absolutely useless operation, and only fatal results could be the consequence of employing it in such cases, as was

not infrequently done in that early period of its history, and the wonder is, that the results are so good as they are. The remote effects of the operation in that period were also lamentable enough.

Fistulae of the bladder and Urethra, injury to the vagina and other soft parts were common, and failure of the joint to unite again, was often the cause of permanent lameness. The data of the next period, 1866-1881, at our disposal consist of Professor Morisani's 50 cases, to which reference has already been made. We select next the 24 cases presented by Dr. Spinelli vide Annal; de Gynecol; Paris 1892 Vol.37, p. 2. 12 of these cases were operated on at the Obstetrical Clinic of the Faculty of Naples, 5 at the Maternity of Grand Hospital for incurables and 7 en ville. Of these 24 women the entire number were saved; and of the 24 children, only one died; extracted by turning in an advanced state of asphyxia, it was resuscitated, but died 12 hours later. Surely the immediate results of these 24 cases could not well be improved. I select one case^I, at random, which may be fairly taken as typical in most

respects. Anna Liquori 15 years of age, primipara, was brought to the obstetrical clinic at term, she had been for three days in labour, the membranes had been ruptured 52 hours before. Many unsuccessful attempts at version and with the forceps had been made at home. Her temperature was 38.5c. The child was living, the head presented in the 3rd. position transverse variety, with prolapse of the left arm; the pelvis was flat rachitic. External Conjugate of Baudelocque 16 cm. promonto-subpubic diam; 8.5 cm. The c.v. was 7 cm. Date of operation 20th. Feb. 1888. After fruitless attempts to reduce the prolapsed arm, the forceps were applied, then Symphysiotomy and extraction with the aid of moderate traction, spontaneous delivery, immediate suture of subpubic wound.

Suppuration at two points of the suture.

Recovery perfect and complete; boy living nt, 2920 gr; biparietal diameter 9.2 cm.

If we are right in selecting this as a typical case, both of Dr. Spinelli's 24 operations and of those cases in which Symphysiotomy, as an emergency operation, is permanently indicated, no result could be more gratifying. The patient is

the subject of a flat rachitic pelvis, she had been for three days previously in labour, forceps had proved unavailing and likewise turning. The case was complicated with prolapse of the left arm. What resort was left to the Obstetrician?

In this country what would have been done?

Undoubtedly craniotomy would have been performed, and the child's life sacrificed. But what does happen? Dr. Spinelli proceeds to divide the pubic joint, the necessary space is thus obtained, the child is safely delivered and the mother makes a safe recovery. Well might Professor Leopold exclaim, at the close of his address on Symphysiotomy at the International Medical Congress of Rome in 1894, after contemplating such results, "Gloria ed onore al professore Morisani"?

The monopoly of Symphysiotomy by Italy was now quickly drawing to a close. Dr. Spinelli's results made it an impossibility that that operation should be confined within such narrow limits.

Professor Pinard^I began to operate in 1892, simultaneously or nearly so with operators in Germany,

1. De la Symphyseot; à la Clin; Baudelocque, 1892
Steinheil Ed.

Austria and America, and his hopes are not to be disappointed! Thirteen Symphysiotomies were performed that year in the "Clinique Baudelocque" Paris, over which he presided, 8 were done by himself and the remainder were done by his Assistants. The first was done on the 4th. of February, and the last on the 14th. of November.

The results are highly creditable to Professor Pinard and they show us nothing else can show, the care with which he had informed himself of every detail. The selection of suitable cases; the amount of separation allowed at the pubis; the dangers and risks guarded against during and after the operation; the scrupulous antiseptis maintained; and finally the careful after-treatment of the patients by Professor Pinard and his staff are all witnessed to by every one of those women who had been operated on appearing before the clinic on 7th. December 1892, and only three of them without their children?

Select a case from amongst Dr. Pinard's 13 cases for consideration. Case ^IIV 3rd May 1892

(Varnier) Femme R. aet 26, IV para size 1 m 46 pelvis rachitic annular, promonto-subpubic diam. 9.8c. 1st. confinement 1886, (clinic de la Rue d'Assas) terminated by Embryotomy after two days labour. 2nd. confinement 1887 (Maternity de Lariboisière service de M. Pinard), labour induced about the 8th. month, terminated by version, when dilation completed, head, with prolapse of cord, hands and a foot, female, apparently dead, resuscitated without insufflation, 2400 gr; died next day.

3rd. confinement 1890 (Maternity de Tenon service de M. Champetier de Ribes) induced at 8 mth. terminated by basiotripsy.

4th. confinement 3rd. May 1892 (Clinique Baudelocque) last period from 3-5 August 1891, the fundus of the Uterus rose to 29 c.m. above the upper border of the Symphysis; the vertex presented in the left transverse diameter;

Considering her antecedents M. Pinard decided to induce labour and practise Symphysiotomy before attempting to extract. Introduction of Champetiers bag on 3rd. May at 5.40 am at 10.30 am dilatation was complete; membranes intact, without pro-

lapse; head in the left transverse position; not engaged at 11.48 am.

Symphysiotomy by M. Varnier (7 minutes)

Separation to the extent of two fingers' breadth (3 c.m.) artificial rupture of the membranes and at 11.58 am, application of the forceps in the left transverse; extraction easy (during which separation did not increase more than half a finger's breadth) boy; 2130 gr. and cephalic measurements were, occip:-ment; 15.4c, occip:-front 11.1c. Suboccip-bregm: 9.3c. Suboccip:-front 9.8c. Biparietal 8.2c. Bitemporal 7.5c. The child was born apparently dead, but revived without insufflation. This child seemed feeble. He was placed in an incubator at 36°c. Breathing was difficult the whole of that day 3rd May, and there was Cyanosis. He did not suck, but retained the milk given him with a spoon.. 4th. May same state respiration accelerated, Cyanosis persisting milk rejected, and died on the 5th. at 6 am.

Autopsy at 6 pm, wt. of cadaver 1950 gr: all the organs appeared healthy. The head was prepared by Tramond and preserved in the museum. No Fractures or Fissures; Wormian bones; Puerperium:-

pathological, abscess of left labium major, incised and drained on the 17th. day; no connection with wound of operation which had healed by first intention. Patient rose on the 26th. day and walked without pain; she went out on the 23rd. of June in perfect condition, seen on 7th. December 1892 no trouble in walking or in micturition. This case selected at random like the former Dr. Spinelli's. It happens that the woman is one of the three who lost their infants, nevertheless the case is interesting, and so far as the woman is concerned fairly representative. As a primiparae she had as usually happens in such cases, not come under the notice of a doctor, until beyond the stage when the induction of premature labour may be resorted to, and labour was terminated by Embryotomy; she having been warned presents herself next pregnancy in plenty of time; labour is induced at the 8th. month, but child dies next day. Again in her 3rd. pregnancy she takes time by the fore-lock, labour is again induced at the 8th. month but requires to be terminated by basiotripsy. And now in her 4th. pregnancy induced labour is resorted to in conjunction

with Symphysiotomy. The child is easily extracted in contradistinction to that which happens in her 2nd. pregnancy, where version was required; and in her 3rd. pregnancy where Embryotomy was required as in her 1st. labour. We may conclude that the death of the 2nd. child was caused in a large measure by its mode of delivery, but the death of the 4th. seemed to depend entirely on its feebleness. When we turn to the mother, there are no bad results from the operation to deplore. She indeed develops an abscess in the left labium major, which has no connection with the wound of operation, which latter healed by first intention; it is incised, dressed, and there the matter ends. On the 26th. day she is allowed to get up, and finds she can walk without pain, and when she returns months afterwards, there is no pain or trouble in walking and no trouble in micturition. What more can be desired than this? I have before me the reports of Symphysiotomy at the Baudelocque clinic by Professor Pinard, for the years 1892-3-4 & 5.

The case just quoted is from the first year's report (1892) Before laying it aside, it

will be as well, to call attention to the fact that Professor Farabeuf had already, well recognising the unsuitability of Symphysiotomy to cope with deformed pelves such as the asymmetrically contracted and the obliquely ovular pelves with synostosis of one sacro-iliac joints, devised an operation to meet those conditions viz ischio-pubiotomy, and Professor Pinard had already used this operation on a case of the latter kind with success. In 1893 Professor Pinard performed 13 Symphysiotomies the same number as the previous year, now alas he has at length to report of after a succession of 20 successful cases, the death of one woman; but there is nevertheless a nett gain, in this year's work of two lives, for all the children have been saved. No blame is due to Symphysiotomy for the loss of this woman, on the other hand it saved the child which must otherwise have perished. She was infected with septicaemia before she came under Professor Pinard's care. He describes the amniotic fluid as green, thick and extremely foetid; strenuous efforts were made after the confinement, to disinfect the uterus and the vagina, and if recov-

ery had taken place it would have been remarkable. She died on the 9th. day after operation from septicæmia. So favourable had been the results obtained in the first year of its trial, that Professor Pinard felt himself justified in laying down new principles which he carried out in this the 2nd. year. How strong, his convictions must have been of the utility and simplicity of the operation may be imagined, when we go back to the memoir of Professor Morisani of 1881, and note his strictures on the very principles Professor Pinard now adopts. These are the new principles upon which the latter acted.

1. The abandonment of the induction of premature labour in all cases where Symphysiotomy will permit the passage of the child at term.
2. Abandonment of all application of the forceps for osseus resistance, when that resistance is situated at the superior straight, the cavity, or the inferior straight.
3. Absolute abandonment of Embryotomy on the living child.

1. De la Symphyséot: à la clin: Baud: 1893. p.29.
or Ann de Gynecol. et d'obstet: January 1894.

4. Momentary enlargement of the pelvis by Symphysiotomy, pubiotomy, ischio-pubiotomy, coceygotomy, in all those cases where there is osseous resistance not overcome by the contractions the head being in a good position, and where calculations show me, that section of the pubis will permit the passage of the head.
5. Amputation utero-ovarian, in all cases of extreme contraction.

Nothing can demonstrate better the absolute conviction of this new French School, that was thus springing up, presided over by Pinard Farabeuf Varnier and others, than the categorical manner in which these principles were laid down, nor justify these principles better, than the clinical results they obtained.

This brings us to the end of 1893 in France. But meanwhile the operation has been spreading; in 1892 there were 12 cases reported in Germany, and in Austria and the United States there were seven.

While in 1893, there was a large increase in the number of the operations. In Italy there were only five that year, but in Germany, France, Austria,

Russia, United States, etc., there were many more, the total number for that year reaching 148 according to Dr. Harris,¹ with the loss of 18 women and 29 children.

We select for consideration from among these the cases reported by Dr. Braun v. Fernwald² operated on in Professor Braun's clinic in the general Krankenhaus in Vienna, the cases number 12 in all, and there were four fatal cases amongst the number. Of these last 4 consider the case operated on by Dr. Koffer.³

The pathological history is as follows. The 2nd. and 3rd. sacral vertebrae projected convexly into the pelvic cavity, by which the bony stenosis is increased, (the length of these was estimated at 5 c.m.) the pelvis was also somewhat diminished in its transverse diameter. The child - which presented by the vertex in the 1st. position - was probably at least 3500 gr in weight and as in addition the woman wished

1. Yr. bk. of treatment 1896 p.339.
2. Centrbl f Gynak 1894 p.881.
3. ibid p.881.

a living child, Symphysiotomy was chosen, on 3rd. October 1893. The operation was undertaken, the woman having been one and a half days in labour, the head engaged and the heart tones good; little bleeding on the division of the symphysis: on account of the drawing away of thick discoloured amniotic fluid and the prolapse of the cord, forceps were not applied, and the delivery of a child 3600 gr weight, asphyxiated but quickly resuscitated, was effected by careful turning. Immediately thereafter in consequence of absence of contractions, there was a "kolossal" bleeding, which was arrested by the rapid removal of the placenta, tamponade, and massage of the uterus. The quantity of blood lost was 2000 gr:

:Recovery: threefold layer stitches; no bone sutures: Drainage of retro-symphysial space suture of a fistula of the gut: Pelvis put in a plaster of Paris binding. The operation was conducted with manual pelvic compression. In spite of this distinct crackling noise was heard during extraction. Puerperium, fever; on 1st. and 2nd. days urine removed by catheter, afterwards spontaneous micturition, evening temp. p.p. 38.5c pulse 154, rigors. The rigors

returned on the 3rd. day. Tampon removed and uterus and retro-symph. space irrigated on 5th.6th.14th.15th. 20th. & 23rd. day after the operation. On the 25th. day patient died with a rapid fall of the temperature. Necropsy - Pyaemia with numerous metastatic abscess of the Lung, and suppuration of both sacro-iliac joints, following on the injury during labour after Symphysiotomy for a generally contracted pelvis. Post: part: endometritis and metrophlebitis, retro-symphysial abscess.

This case therefore has one important resemblance to the first fatal case of Professor Pinard to which reference has been made, the amniotic fluid was abnormally thick and discoloured. Dr. Braun does not add that it was in his case also "übel reichend" nevertheless both patients died from septic infection. And it is doubtful whether they would have lived even if Symphysiotomy had not been performed. There is this to add further, that in this case, injury had been done to the sacro-iliac joints, but is this injury so serious as it has been made to appear provided it occurs during a properly conducted operation? In those cases where it has occurred spontaneously

during labour associated with spontaneous rupture of the symphysis pubis, recovery has taken place.

The accident was observed to occur in another of Dr. Braun's cases, as evidenced by the cracking noise heard during delivery, but with no remote bad effects on the mother.

These fatal cases only raise another question as to whether Symphysiotomy is justifiable when infection is present. Certainly the additional difficulties in Dr. Koffer's case, of post partum haemorrhage and injury to the sacro-iliac joints proved very embarrassing when associated with prior septic infection. Those who are resolved to obtain for Symphysiotomy the lowest possible mortality will agree with Dr. Braun's conclusion and make it an indispensable condition "dass die Gebärende sicher aseptisch sei". There will be found those, however, who cannot admit that prior septic infection is a contra-indication of the operation.

The majority of Dr. Braun's cases are pluriparae and it is interesting to note that women with such a past child-bearing history succeeded in

passing the stage when the induction of premature labour could be performed. They stand in marked contrast to the Italian practice where the majority operated on are primiparae vide Dr. Spinelli's 24 cases.

Dr. Braun's cases are mostly the subject of flat rachitic pelvis, one or two of generally contracted and two of the simple flat variety.

The c.v. varies from 8.25 to 7.50 c.m. Their previous history usually contains reference to craniotomies, high forceps, and inductions of premature labour. The separation of the symphysis pubis that was found necessary was 2 or 3 c.m., twice there was considerable haemorrhage from the blood vessels supplying or draining the clitoris, which was found difficult to control. Healing of the operation wound by first intention was not attempted. The children were often asphyxiated when born but could be resuscitated.

The puerperium calls for no remark, it was usually a-febrile or only slightly febrile. When dismissed some of them complained of pain in the symphysis or in the coccyx, the pain might only be

present in walking, occasionally it was localised in the site of the silver sutures which had sometimes been used for suturing the bones. In one case there was incontinence of urine, which it was supposed might be caused by the silver sutures and these were removed, but without effect, treatment of this condition adopted later proved successful.

In some of the 8 cases the symphysis gaped to the extent of 3 mm, in one case from 4-5 mm.

The condition of the women some twelve months later was much improved. They might not be able to run a race, or equal to hard work, and in getting out of bed some of them might feel a slight inconvenience in the sacro-iliac joints, but the symphysis was usually well united by fibrous tissue, and some of them had actually been able to engage in dancing at the Carnival of 1894. Certainly they were far removed from being "practically bed ridden since the operation". No one, who is not blinded by prejudice, can deny that these results though in some respects inferior to those of Professor Pinard's are nevertheless very creditable, and when one remembers

that the operation was a new one to the operators, they are still more creditable.

Before closing the case for Symphysiotomy I I should like to refer to the two last reports of Professor Pinard for the years 1894 and 1895. In the first he says "Fidele a mes engagements, jé veux anjourd'hui vous exposer les resultats que nous avons obtenus à la clinique Baudelocque du 7 December 1893 au 7th. December 1894; apres avoir suivi et appliqué rigoureusement les préceptis que je demande la permission de rappeler", and then he repeats the principles upon which he acted and which have already been referred to.

His operations for that year numbered 22 performed by himself and his assistants. Among his "operées" there will be noticed an increase in the number of primiparae. He therefore evidently does not share the view of Professor Leopold^I of Dresden, that Symphysiotomy should not be performed on primiparae, and we shall find that Dr. Pinard suggests an explanation of how it came about that Symphysiotomy

on primiparae is regarded with dread by some operators.

Particulars of these 22 cases are as follows.

The operation was performed:-

1. 13 times on primiparae.
 - 9 " " multiparae.
2. 17 children presented by the vertex.
 - 2 " " " " breech.
 - 1 child " " " " shoulder.
 - 1 " " " " brow.
 - 1 " " " " face.
3. 20 times the pelves were rachitic.
 - 1 time rachitic associated with congenital unilateral coxo-femoral dislocation.
 - 1 time the pelves was spondilolisthetic.
4. 1 woman was operated on for the second time.

There were three fatal results, one from intestinal obstruction, caused by a fibrous band passing between two portions of the intestines, diagnosed during life and certified at the autopsy, and two from septicaemia infected prior to operation.

Of the children two died; one was born asphyxiated, but with the heart still beating, the cranial bones had been fractured by violent unsuccessful traction with the forceps before the woman was brought to the Baudelocque Clinique. The second perished from asphyxia produced by compression of the cord.

In this third year of what Professor Pinard calls his apprenticeship, he met with no accident or complication during the operation, even in the case of the woman with the luxation of the haunch, and in the case with the asymmetrically contracted pelvis, the section was performed with simplicity and certainty, thus disposing of theoretical objections founded on the supposed occurrence of difficulty due to ankylosis of the symphysis pubis, and to variation in the position of the joint. He did not experience any serious haemorrhage from the operation. These excellent results he attributes to his faithfully following the methods devised by Professor Farabeuf. The serious haemorrhage experienced by other operators, is due he fears "bien plutôt une anomalie opératoire qu'une anomalie vasculaire" and he attributes the

injuries inflicted on primiparae to the same reason. The invariable prior use of Champetiers bag, and the reclosing of the pelvis when the head was once engaged, have with him averted dangers in primiparae which have been previously referred to as the dread of some operators. This year he has had no vesico-vaginal fistula, or met with incontinence of urine as after results. As to remote results we note that all the patients returned to their former mode of life, and to their former conditions.

Some of his cases for this year are exceedingly interesting. There is one case in which Symphysiotomy and the induction of premature labour may be well compared with each other. On the 1st. October 1892 M. Pinard performed Symphysiotomy on this woman, and both mother and infant were saved. On 3rd. Oct. 1893 the induction of premature labour was performed by M. Pinard on the same woman, and in 1894 she is exhibited at the Baudelocque Clinique with a fine healthy child in her arms, not that obtained by the induction of premature labour which had perished, but that obtained in the former year by Symphysiotomy.

The other case is that upon whom the combined operations of Symphysiotomy and induced labour

were performed in 1892, and whose child died from feebleness (syphilis)? Again becoming pregnant she was allowed to go to term, and a second Symphysiotomy was performed on her with complete success, both as to the woman, and as to her child. These women suffer no inconvenience now, either in standing or in walking.

As to the after results of these 22 cases Dr. Pinard speaks with no uncertain voice, before the students of the Baudelocque Clinic, and the cases themselves are present to confirm the truth of his statements. They suffer no inconvenience in the performance of the daily routine of life, and that is often of the most arduous kind.

It will be noted that this year Dr. Pinard has further enlarged the sphere of the operation of Symphysiotomy. He has performed the operation five times for mal representations which could not be rectified, a brow, face, shoulder and two breech presentations with the happiest result.

In his latest report December 1895, 20 cases of Symphysiotomy are described. They were

operated on by M. Pinard, and his assistants M.M. Varnier, Lepage, Wallich and others, and as usual at the Baudelocque Clinique. There were 12 primiparae and 8 multiparae. The 20 infants presented by the head at the level of the superior straight, 18 of the cases presented abnormal pelves of the rachitic type. (with the maximum contraction at the superior straight) One case had a cypho-scoliotic rachitic pelvis, (with the maximum contraction at the inferior straight). And there was one case with an obliquely ovular pelvis of Naegele. The operation was three times performed on women for the second time. After Symphysiotomy the child was extracted 14 times with forceps, and 3 times by version d'emblée: 17 women survived and 3 died: 17 children were saved and 3 perished.

The fatal cases amongst the women were due 1st. to influenza; this patient vomited blood the first day she was admitted, and died vomiting blood on the 3rd day, the antopsy shewed old pulmonary lesions, and broncho-pneumonia which was the cause of death: the peritoneum was perfectly healthy, the operation wound was perfectly healed: there was no

sanguineous effusion into the peripheral tissues, and the pelvis was ascertained to be of the Naegele type.

2nd. to broncho-pneumonia, this patient complained on the 3rd. day after the operation of a stitch in the side, her temperature was elevated at first slightly, but she died on the 8th. day with symptoms of the above, an Antopsy was refused. The operation wound, however, had healed by first intention. Serum from the wound gave no cultivation: but pulmonary fluid gave pneumo- and streptococcus, and the 3rd. to embolism. In this case extraction proved very difficult after Symphysiotomy, forceps were used in vain and it was finally accomplished by version. The child was a large one weighing 4960 gr. about 11 lbs: the biparietal diameter was 10.5 c.m. and the c.v. diameter available not more than 8 c.m. The uterus was curetted the 3rd. day after labour. The operation wound suppurated on the 5th. the uterus was infected, there was phlegmasia alba dolens, nevertheless recovery of the woman appeared certain, when she suddenly died 46 days after the operation from

Embolism.

Of the children 3 died as we have seen, the child of the woman just mentioned, one stillborn and a third from convulsions the day after its birth.

Dr. Pinard repeats what he said the year previous, that no accident or complication occurred during the operation, and that there were no injurious effects produced upon the maternal passages. In one case where Dr. Bouffe de Saint-Blaise observed a tear commencing in the anterior wall of the vagina he unhesitatingly divided the perineum .

As formerly the women could go about their ordinary daily vocations, as they were wont, without any inconvenience whatever.

We must now close the case for Symphysiotomy and endeavour to draw some conclusions, from this mass of evidence, some of which we have exhibited in the preceeding pages.

We have seen that among those who have adopted the operation of Symphysiotomy, there exists a dispute as to the relation of this operation to that of the induction of premature labour. We have seen

also that there are initial difficulties, in the selection of the latter operation, which to a large extent disappear in the case of Symphysiotomy.

For, any dubiety that exists as to the degree of contraction which may be present in the pelvis of the patient whom we have to treat is not so embarrassing, in as much as a wider range of error is permissible under Symphysiotomy than under the induction of premature labour. Nor are we called upon accurately to determine the date of conception, and the stage of gestation which are so necessary in the induction of premature labour. Many more children are saved by Symphysiotomy, and in the case of women who are free from septic infection, the danger from the operation when skilfully performed is not great, and these are exactly the terms which one feels must be employed in the description of the induction of premature labour.

Perhaps I may be permitted to point out a certain analogy between these operations, and the two operations for stone in the bladder. We select the following points of resemblance between Symphysiotomy

and Lithotomy, 1st. there are important blood vessels to be avoided in each when making the incision, 2nd. when these important vessels are not injured, the surgeon must not waste time tying bleeding points, 3rd when these vessels are injured, the haemorrhage is very difficult to control, 4th. the supposed danger of sepsis from proximity of rectum.

Now we may suppose a surgeon, who has been in the habit of practising Lithotrity, which has not these risks, with comparative success, have this operation of Lithotomy brought under his notice and better results claimed for it.

It can readily be conceived that his knowledge of the anatomy of the parts, containing so many blood vessels; the proximity of the wound of operation to the rectum, involving the risk of injury during the operation and sepsis after the operation, would cause him to hesitate in accepting the alternative, and nothing but the best clinical results would induce him to change his mind. Lithotrity has its use, but I doubt whether most surgeons do not prefer, when the stone is not too large, to cut into the

bladder, remove the stone and have done with it.

So too with Symphysiotomy, when we approach the neighbourhood of the clitoris, the parts become exceedingly vascular vide illustrations in Précis Obstetrique 1896 by Ribemont-Dessaignes.

but the grooved director keeps the knife from injuring these blood vessels, in like manner as the "staff" guides the knife safely into the bladder. The peritoneum for the same reason need not be injured at all, and it is either carelessness or lack of skill that brings that structure into danger. And it is not necessary to waste time securing and ligaturing every bleeding point, all that is necessary is to place an aseptic or rather antiseptic tampon in the wound and hold it there, while delivery is being effected.

Further we may note that in respect of injury to other pelvic joints, these can be in the large majority of cases, easily avoided. If the symphysis pubis is divided, and the bones are allowed to fall apart with a swing to the extent of $2\frac{3}{4}$ inches as in Dr. Galabins case referred to by Dr. Horrock,

we can well imagine like him, the condition of the sacro-iliac joints, but we do not wonder that the mother had been able to work since, but spent the most of her time lying on her back.

We repeat that the evidence shows, that when the operation of Symphysiotomy is performed in a professional manner, there are no risks to the mother in suitable degrees of pelvic contraction provided she is not the subject of septic infection or some other disease.

We have seen too that the remote effects of Symphysiotomy are not injurious; and the operation can be performed not only once on the same woman but twice with impunity, and it remains for experience to teach us how many times it may be done on the same woman without ill effects.

While we cannot doubt that Dr. Pinard's principles, carried out by him, in the manner described in his reports, amply justify him in the adoption of these principles, and will justify all others who who adopt them, after preparing themselves as he did, by a previous careful study of the operation on the

cadaver by observing the same technique for the operation and by carrying out the same strict antisepsis.

Those who now resort to Symphysiotomy in lieu of Embryotomy, will gradually, I believe, adopt Symphysiotomy in lieu of the induction of premature labour also. The first step, however, will undoubtedly be its adoption as an alternative to Embryotomy. We have seen that the number of craniotomies practiced in this country have steadily decreased with the improvement of the obstetrical forceps, but we must be on our guard that cases which would have appeared under the craniotomies do not escape our notice under "infantile mortality after the use of forceps" for it is a well known fact that the use of the long forceps in bony contractions of the pelvis is only another form of Embryulcio.

It cannot be longer maintained as Baudelocque did, that when the operation had been performed with success, it had been resorted to unnecessarily, for we find that in women with contracted pelves upon^{whom} the operation of Induction of premature labour had been previously performed, within so many cases the

death of the infant, due to its inability to carry on the battle of life: who had also been delivered by some form of Embryotomy. In these cases I say, we find Symphysiotomy stepping in, rescuing the life of the child, while inflicting no manner of injury upon the mother. With such results before him, the obstetrician who does not give the operation of Symphysiotomy his embiassed and serious consideration will neither being doing his duty by himself, or by those women who place themselves under his care, and who are the subjects of these degrees of pelvic contraction.

But little remains to add concerning Caesarean Section and its relation to Symphysiotomy.

There can be no question that Caesarean Section is an incomparably more serious operation than Symphysiotomy; and the maternal mortality is not likely to touch a figure much below 12%. While there is every reason, to believe on the other hand, that the mortality of Symphysiotomy will steadily diminish and will fall much below even 5%.

If we take the results of Professor

Pinard's operations, we find that he performed Symphysiotomy 69 times in the four years and that 7 women died, i.e. about $8\frac{1}{2}\%$. But are these deaths to be laid to the charge of Symphysiotomy? What of the cases which died of septicaemia, intestinal obstruction, embolism, and broncho-pneumonia?

Can we properly blame Symphysiotomy for the fatal results in these cases? Surely not?

At any rate I think it is plain that the mortality of Symphysiotomy may reasonably be expected to diminish.

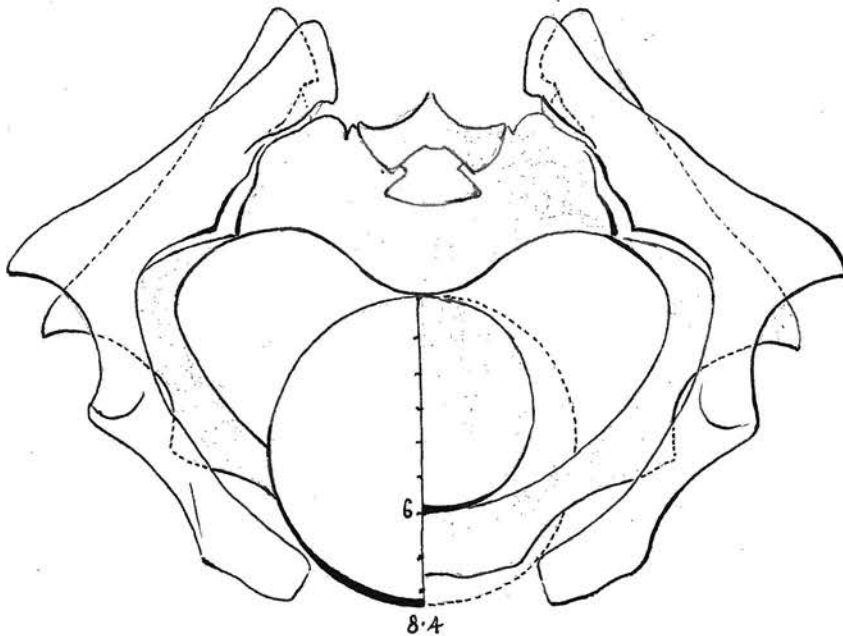
Nevertheless as an emergency operation we may expect that Symphysiotomy for some time to come will be compelled to act the part of the scape-goat to "prolonged ineffectual tractions with the forceps" and "ineffectual attempts at version" en ville.

Excluding these cases which Symphysiotomy will in the future snatch from Caesarean Section; there will always remain these cases of extreme contraction - the "absolute indication" so called - where Caesarean Section will reign supreme.

Interpubic separation of	Augmentation obtained for each pelvis of					
	5 cm	6 cm	7 cm	8 cm	9 cm	10 cm
5 cm	23 mm	21 mm	19 mm	17 mm	16 mm	14 mm
6 cm	29 "	36 "	23 "	21 "	19 "	18 "
7 cm	34 "	31 "	28 "	25 "	23 "	21 "

Professor Farabeuf's tables of enlargement of Pelves by Symphysiotomy, vide Professor Farabeuf's work on Symphysiotomy.

FIG. I.



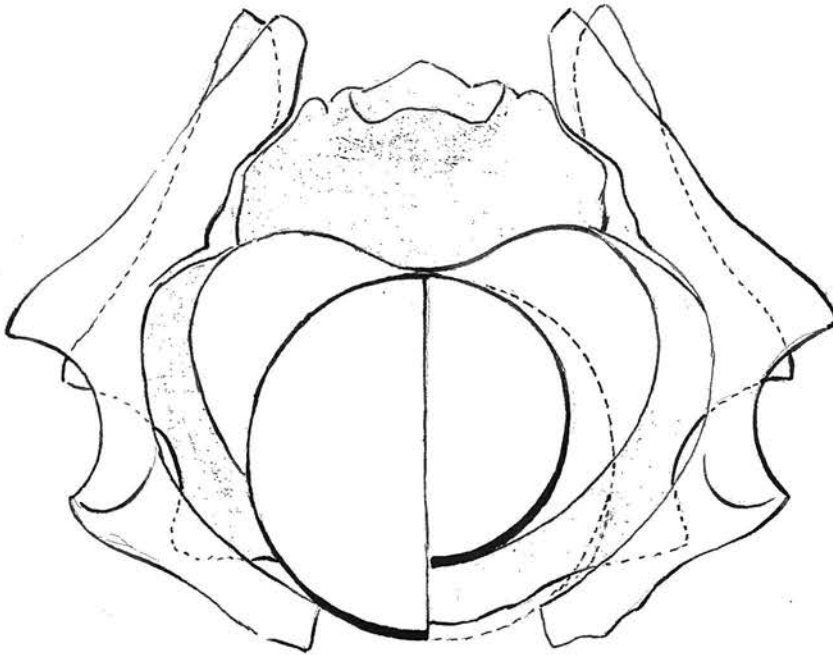
Parallel Section at the superior straight of a very contracted pelvis having a promonto-pubic diameter of 6 centm. represented by the shaded portion of the diagram, before the section of the symphysis, and by the unshaded portion after the separation of 60 mm: permitted by the section.

The diameter of the unshaded sphere, representing the enlarged pelvis is to the diameter of the shaded sphere representing the intact pelvis, as 84:60.

The capacity of the unshaded sphere is to the capacity of the shaded sphere::310:113 almost three times more.

Copied from diagram in *de la Symphyséotomie* par le Professor M. Pinard, Paris 1891.

Fig. 2.

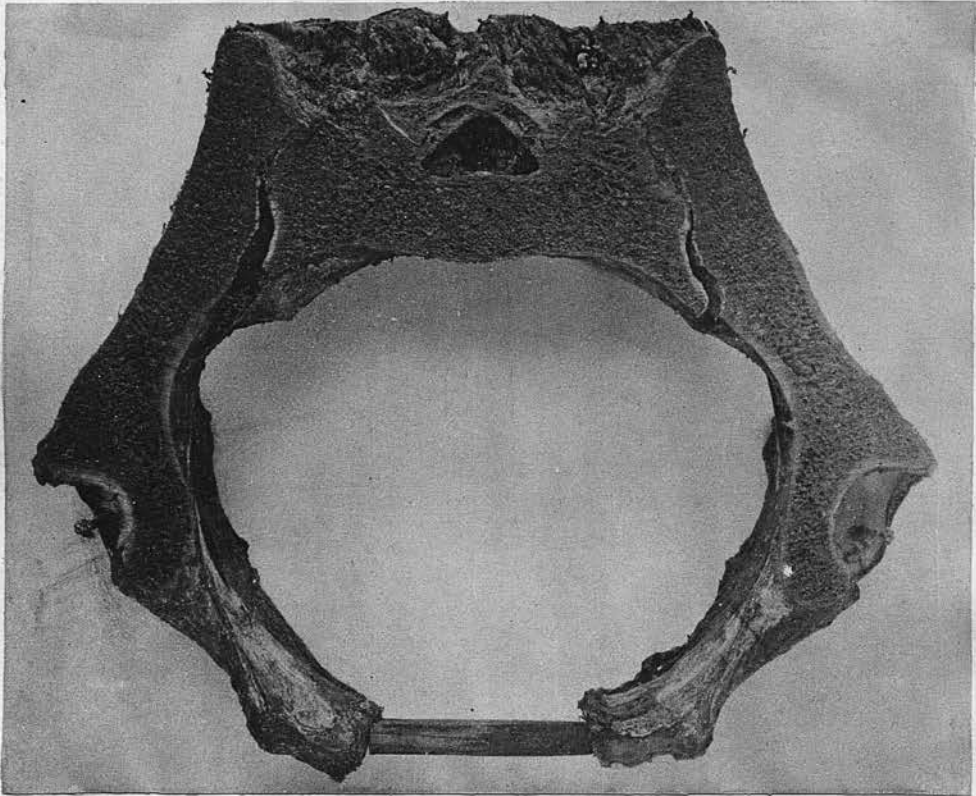


Parallel section, at the superior straight, of a moderately contracted pelvis, with a promontopubic diameter of 8 cent: represented shaded before Symphysiotomy, and unshaded after a separation of 60 mm: permitted by that operation.

The diameter of the unshaded sphere representing the enlarged pelvis, as to the diameter of the shaded sphere representing the intact pelvis as 98:80. The capacity of the unshaded sphere is to that of the shaded sphere as 488:267 about the double. Further a foetus of 3000 gr. will be smaller for the pelvis upon which Symphysiotomy has been practised than a foetus of 2000 gr. for the pelvis in its contracted condition.

Copied from the diagrams in de la Symphysiotomie par le Professor A. Pinard, Paris 1891.

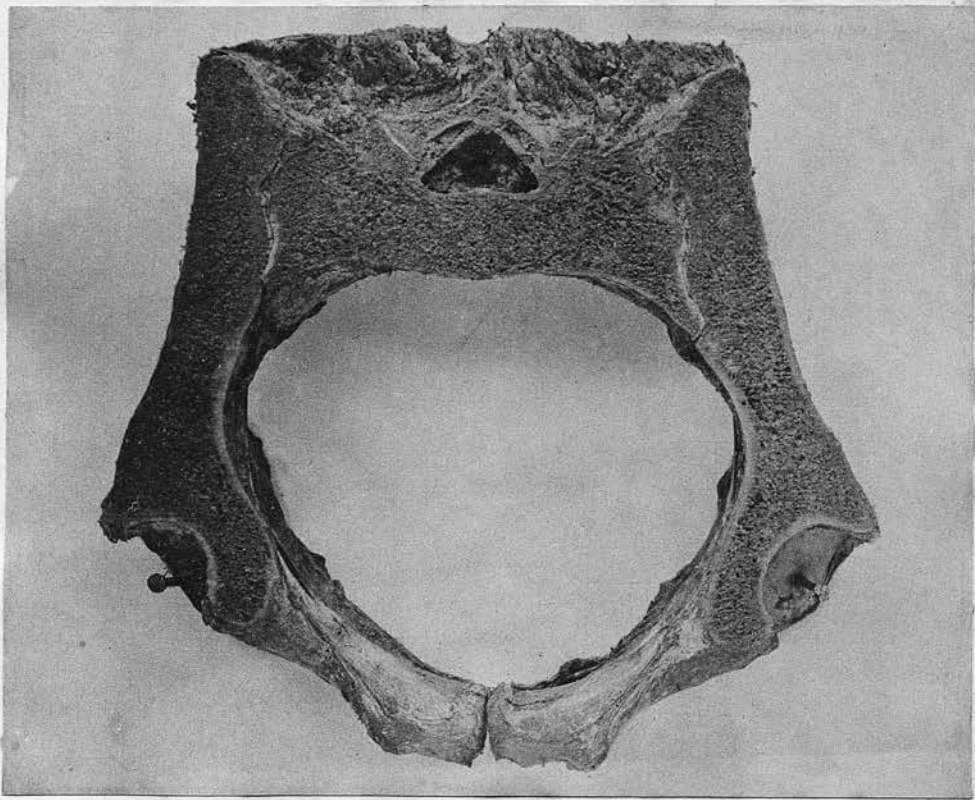
Plate I.



Section in the plane of the superior straight of a Pelvis of 10.8c. converted into a Pelvis of 12.4c. due to a separation of the symphysis pubis of 6 c. with a simple detachment with injury of the anterior ligaments of the sacro-iliac joints (The woman died of nephritis 9 days after a confinement at term).

Presented Professor Pinard.

Plate II.



The same section after approximation of
the pubic bones.